UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,275	12/06/2001	Gerd Konrad Bayer	DE920000090US1	3365

47049 7590 12/20/2006
FERENCE & ASSOCIATES
409 BROAD STREET
PITTSBURGH, PA 15143

EXAMINER	
JOO, JOSHUA	
ART UNIT	PAPER NUMBER
2154	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/683,275	BAYER ET AL.	
	Examiner	Art Unit	
	Joshua Joo	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/19/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1. Claims 1-13 are presented for examination.

Response to Arguments

2. Applicant's arguments filed 10/16/2006 have been fully considered but they are not persuasive.

Applicant argued that:

3. (1) Smith et al. does not teach or suggest operating a local memory being associated with the network coupling adapter as a cache memory for storing transmission control information. The cache residing in the local memory does not store transmission control information, but rather stores responses to client requests.

4. In response, Smith et al. teaches,

i) "Working memory 124 provides operational memory for adapter 108, and includes proxy application 132, a proxy cache 133, and a communication protocol stack 134. Proxy 132 and protocol stack 134 are loaded from non-volatile memory 123 into working memory 124 at start-up" (Col. 5, lines 51-55)

ii) "Communication protocol stack 134 is a TCP/IP stack including a sockets layer 210, a TCP layer 212, IP layer 214, and a device layer 2... including a server bus driver 218." "Connections between the various modules of proxy 132 and server application 121 are established through sockets layer 210, TCP layer 212, IP layer 214 and server bus driver 218." (Col. 7, lines 3-6, 9-15)

Microsoft Computer Dictionary Fifth Edition defines cache as,

iii) "A special memory subsystem in which frequently used data values are duplicated for quick access."

Cited section (i) of Smith et al. teaches of storing a communication protocol stack, i.e. considered as the claimed transmission control information, in the working memory, and the communication protocol stack 134 is loaded from the non-volatile memory 123. Cited section (ii) teaches that the communication protocol stack 134 in the working memory provides connection for the server application. The working memory meets the definition of a cache set by the Microsoft Computer Dictionary since communication

protocol 134 is loaded from the non-volatile memory into the working memory and the working memory is accessed to provide connection for the application. Therefore, working memory may be considered as also a cache for the transmission control information.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 12-13, Applicant seeks to claim a network coupling element. Applicant provides evidence that the network coupling element is a host adaptor and hardware device (Paragraph 0024). However, the claims are written in an improper form because as claimed, it is not definite or clear that "network coupling element" is a physical article or object, and as such, it is not definite or clear that the claimed invention is a machine or manufacture.

Examiner suggests amending the claim to recite and/or include, "A network coupling adaptor..." or "A network coupling element... characterized by hardware and comprising...".

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 3, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al. US Patent #6,801,927 (Smith hereinafter).

9. As per claims 1 and 12, Smith teaches the invention as claimed including a method and network coupling element, characterized by the steps of:

operating a local memory (fig. 1 item 124) being associated with the network coupling adapter as a cache memory (fig. 1 item 133) relative to a system memory (fig. 1, item 110) of the one or more computing device for storing transmission control information such that transmission control information is cached in the local memory (fig. 1, item 134; Col. 5, lines 6-37; Col. 5, line 51 – Col. 6, line 26. Communication protocol stack. Item 134 including TCP/IP which is stored in the working memory.), wherein information other than transmission control information is stored in the system memory (fig. Item 110; Col 5, lines 10-14, 38-50. non-volatile memory. Contains data and code, which is other than transmission control information.).

10. As per claim 3, Smith teaches the method comprising the steps of using said transmission control for the processing of queues or queue pairs (Col. 8, lines 55-67).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 2, 4-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, in view of Pettey et al. US Patent #6,594,712 (Pettey hereinafter).

13. As per claim 2, Smith does not specifically teach of InfiniBand Architecture. Pettey teaches of InfiniBand Architecture (Abstract; Col. 3, line 1 – Col. 4, line 22).

14. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Smith and Pettey because Pettey's teachings of an InfiniBand Architecture would avoid reduction in usable bandwidth of local bus of the system (col. 3, lines 20-28).

15. As per claim 4, Smith and Pettey taught teach method according to claim 2. Smith further teaches the method comprising the steps of using said transmission control for the processing of completion queue (Col. 8, lines 55-67).

16. As per claim 5, Smith and Pettey taught the method according to claim 2. Smith further teaches the method comprising the steps of using said transmission control for processing of address translation and protection tables (Col 5, lines 51-62. Inherent because of connections between adapter and server; and adapter and clients.).

17. As per claim 6, Smith and Pettey taught the method according to claim 2. Smith further teaches the method comprising the steps of using said local memory for connecting at least one computer device (i.e. server) to a network (Col 5, lines 51-62. i.e. between adapter and clients).

18. As per claim 7, Smith and Pettey taught the method according to claim 2. Smith further teaches the method comprising the steps of using said transmission control information for bundled per queue or queue pair (Col. 8, lines 55-67).

19. As per claim 8, Smith and Pettey taught the method according to claim 2. Smith further teaches the method comprising the steps of configuring said cache memory not to discard transmission control information for particular queues after casting-out (Col. 6, line 52- Col. 7, line 15; Col. 8, lines 55-67).

20. As per claim 9, Smith teaches the method comprising the step of writing said transmission control information to the local memory (Col. 5, line 39–Col. 6, line 43). However, Smith does not specifically teach InfiniBand. Pettey teaches of InfiniBand Architecture (Abstract; Col. 3, line 1 – Col. 4, line 22).

21. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Smith and Pettey because Petty's teachings of an InfiniBand architecture would provide translation of virtual addresses of multiple different remote nodes for the network (Col. 4, lines 47-54).

22. As per claim 10, Smith and Pettey taught the method according to claim 2. Smith further teaches the method comprising the steps of using said previous steps for connecting a plurality of I/O hardware devices associated with a computing device (Col. 5, line 39 – Col. 6, line 43. Inherent since connections of clients, server and adapter;).

23. As per claim 11, Smith and Pettey taught the method according to claim 2. Smith further teaches the method comprising the steps of using said previous step for providing communication channels for interprocess communication between a plurality of process associated with one or more computing devices (Col. 5, line 39 – Col. 6, line 43. Inherent since connections of clients, server and adapter).

24. As per claim 13, Smith teaches the network coupling element comprising a local memory being operable as a cache memory (fig. 1, items 133 and 123) relative to said interconnected memory of the one or more computing devices, such that transmission control information is cached in the local memory (fig.

1, item 134; Col. 5, lines 6-37; Col. 5, line 51 – Col. 6, line 26. Communication protocol stack. Item 134 including TCP/IP which is stored in the working memory.) and information other than transmission control information is stored in the system memory (fig. Item 110; Col 5, lines 10-14, 38-50. non-volatile memory. Contains data and code, which is other than transmission control information.). However, Smith does not specifically teach InfiniBand Architecture. Pettey teaches of InfiniBand Architecture (Abstract; Fig. 2; Col. 3, line 1 – Col. 4, line 22; Col 25, lines 11-26).

25. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Smith and Pettey because Pettey's teachings of an InfiniBand Architecture would provide translation of virtual addresses of multiple different remote nodes for the network (Col. 4, lines 47-54).

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

27. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can normally be reached on Monday to Friday 7 to 4.

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

29. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

30. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 12, 2006
JJ